CLAIMS

1. An optical system, comprising:

an irradiating system which has an optical axis within said irradiating system and includes a radiation source, and

an imaging system which has an optical axis within said imaging system and includes a two-dimensional radiation sensor, said imaging system being arranged to provide an image of an object being irradiated by said irradiating system,

wherein said radiation source and said two-dimensional radiation sensor are mounted on a common substrate, and

wherein said optical axis of the irradiating system and said optical axis of the imaging system are non-coinciding within said systems.

2. The optical system according to claim 1, wherein the irradiating system is arranged to redirect radiation from the radiation source, and the imaging system is arranged to redirect radiation from the irradiated object towards the radiation detector.

3. The optical system according to claim 1 or 2, wherein the optical axis within the irradiating system and the optical axis within the imaging system run essentially in parallel to each other.

4. The optical system according to claim 3, wherein the optical axis within the irradiating system and the optical axis within the imaging system run essentially in parallel to the common substrate.

5. The optical system according to claim 4, wherein the optical axis within the irradiating system and the optical axis within the imaging system define a plane which is essentially parallel to and at a distance from the common substrate.

6. The optical system according to any one of the preceding claims, wherein the irradiating system further

comprises a radiation guide for guiding radiation from the radiation source towards the object.

7. The optical system according to claim 6, wherein the radiation guide comprises metallized non-exit surfaces.

8. The optical system according to claim 6 or 7, wherein the radiation guide presents an inclined radiation-redirecting exit surface.

9. The optical system according to any one of claims 6-8, wherein the radiation guide is mounted on the common substrate.

10. The optical system according to any one of the preceding claims, wherein the imaging system further comprises a sensor boresight unit for controlling a spatial origin of radiation transmitted towards the radiation sensor.

11. The optical system according to claim 10, wherein the sensor boresight unit is mounted on the common substrate.

12. The optical system according to claim 10 or 11, wherein the sensor boresight unit comprises a mirror for redirecting radiation from the object towards the radiation sensor.

13. The optical system according to any one of claims 10-12, wherein the sensor boresight unit comprises a lens for creating an image of adequate image quality on the radiation sensor.

14. The optical system according to claim 10 or 11, wherein the sensor boresight unit comprises an optical component, which is arranged to transmit radiation towards the radiation sensor, and wherein the optical component comprises a mirror for redirecting radiation from the object towards the radiation sensor, and a lens for creating an image of adequate image quality on the radiation sensor.

15. The optical system according to claim 14, wherein the sensor boresight unit further comprises an

aperture stop, which is arranged in front of the optical component.

16. The optical system according to claim 14 or 15, wherein the optical component presents outer surfaces at least part of which are covered with a material arranged to reduce internal reflections in said outer surfaces.

17. The optical system according to claim 10 or 11, wherein the sensor boresight unit comprises a housing, providing an internal channel, which is arranged to transmit radiation towards the radiation sensor, wherein a mirror for redirecting radiation from the object towards the radiation sensor and a lens for creating an image of adequate image quality on the radiation sensor are mounted in the housing.

18. The optical system according to claim 17, wherein the sensor boresight unit further comprises an aperture stop arranged in said housing.

19. The optical system according to claim 17 or 18, wherein the housing presents inside surfaces at least part of which are arranged to reduce specular reflection of radiation.

20. An analysis system, comprising an optical system according to any one of the preceding claims, a printed circuit board implementing said common substrate, and an image processor for analysing image information received from the radiation sensor, wherein the optical system is supported by and the image processor is mounted on said printed circuit board.

21. A modular unit for an electronic pen having a writing implement, said modular unit comprising a carrier, and an analysis system according to claim 20 being mounted on the carrier, said carrier having means for receiving said writing implement in order to position the writing implement in relation to the analysis system within the electronic pen.

22. The modular unit according to claim 21, wherein the modular unit has a dimension allowing the modular unit to be mounted inside the electronic pen.

23. The modular unit according to claim 21 or 22, wherein the printed circuit board of the analysis system is mounted on the carrier for mounting the analysis system on the carrier.

24. The modular unit according to any one of claims 21-23, wherein the carrier has an elongate shape which extends, when the modular unit is comprised in an electronic pen, in a longitudinal direction of the electronic pen.

25. The modular unit according to any one of claims 21-24, further comprising a contact sensor which is mounted on the carrier.

26. The modular unit according to any one of claims 21-25, further comprising means for forming attachment to an outer shell part of the electronic pen.

27. The modular unit according to any one of claims 21-26, further comprising a vibrator unit which is mounted on the carrier.

28. The modular unit according to any one of claims 21-27, further comprising a wavelength filter mounted on the carrier.

29. A sensor boresight unit for transmitting radiation from an object to a radiation sensor, said sensor boresight unit comprising:

a housing, which provides an internal channel that changes direction at a turn within said housing and further provides a radiation entrance end and a radiation exit end of said channel,

a lens, which is mounted in the internal channel at said radiation entrance end of said housing, and

a mirror, which is mounted in the housing at said turn of the internal channel for redirecting radiation along the change of direction of the internal channel.

30. The sensor boresight unit according to claim 29, further comprising a holder for a radiation source for illuminating said object.

31. The sensor boresight unit according to claim 29 or 30, wherein said lens defines an image plane at said radiation exit end, and wherein said housing defines a barrier in said channel to screen said image plane from said radiation entrance end.

32. The sensor boresight unit according to claim 31, wherein said housing defines at least one radiation trap in a channel-defining wall portion between said barrier and said radiation entrance end.

33. The sensor boresight unit according to any one of claims 29-32, wherein said housing defines an aperture stop in said channel.

34. An optical component for transmitting radiation from an object to a radiation sensor, said optical component including a solid body defining a radiation path within the body, said solid body comprising:

a radiation entrance surface for receiving radiation into said radiation path, said entrance surface including a lens element,

a radiation exit surface,

a tubular part for transmitting radiation in the radiation path along a longitudinal axis of the tubular part, and

a mirror surface at an end of the tubular part opposite the entrance surface, wherein a normal of the mirror surface is slanted to the longitudinal axis of the tubular part such that the radiation path is redirected in the mirror surface towards the radiation exit surface of the solid body.

35. The optical component according to claim 34, further comprising a holder for a radiation source for illuminating said object.

36. The optical component according to claim 34 or 35, wherein said lens element defines an image plane at

said radiation exit end, and wherein said solid body defines a barrier in said tubular part to screen said image plane from said radiation entrance surface.

37. The optical component according to any one of claims 34-36, further comprising an element for defining an aperture stop on said radiation entrance surface.

38. A modular unit for an electronic pen having a writing implement, said modular unit comprising:

a carrier with a receiver for the writing implement,

a printed circuit board,

a two-dimensional radiation sensor mounted on the printed circuit board, and

an imaging unit which defines an image plane,

wherein the carrier, the printed circuit board, and the imaging unit are joined together with the imaging unit facing the radiation sensor to locate the image plane at the radiation sensor.

39. The modular unit according to claim 38, wherein the imaging unit is designed to control the spatial origin of radiation reaching the radiation sensor.

40. The modular unit according to claim 38 or 39, further comprising a radiation source for illuminating an object plane defined by the imaging unit.

41. The modular unit according to claim 40, wherein the imaging unit comprises a holder for carrying the radiation source.

42. The modular unit according to claim 40 or 41, further comprising an electrical connection between the radiation source and the printed circuit board.

43. The modular unit according to claim 41 in combination with claim 42, wherein the electrical connection exerts a clamping force between the imaging unit and the printed circuit board.

44. The modular unit according to any one of claims 38-43, wherein the printed circuit board is supported by the carrier.

45. The modular unit according to any one of claims 38-44, wherein the printed circuit board is attached to the carrier.

46. The modular unit according to any one of claims 38-45, wherein the imaging unit is supported by the printed circuit board.

47. The modular unit according to any one of claims 38-46, wherein the imaging unit is attached to the printed circuit board.

48. The modular unit according to any one of claims 38-47, further comprising at least one connector for attaching at least part of an outer casing of said electronic pen.

49. An electronic pen arrangement, comprising:

a writing implement,

an optical system which is designed to generate an image of a writing surface on which the pen is operated, said image including part of said writing implement, and

a processing unit which is designed to derive data indicative of a position, based upon a position-coding pattern in said image and based upon the location of said part in the image.

50. The electronic pen according to claim 49, wherein said part is representative of a contact point between the writing implement and the writing surface.